

The Listing of Claims will replace all prior versions, and listings, of claims in the application, including the claims filed with the Amendment and Reply of January 14, 2004.

Listing of Claims

Claim 1 (currently amended) A non-aqueous rechargeable lithium battery having reduced capacity fade rate during cycling, the battery including a lithium insertion compound cathode, a lithium or lithium compound anode, a separator, a non-aqueous electrolyte including a lithium salt dissolved in a non-aqueous solvent, and an amount of lithium borate dispersed on the surface of the active cathode material, wherein:

- (a) the lithium insertion compound cathode is a lithium transition metal oxide cathode with LiCoO_2 type structure; and
- (b) the lithium borate is mixed with the lithium insertion compound cathode and heated to a temperature in the range between 250°C to less than 650°C.

Claim 2 (currently amended) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein the mixture of lithium borate and the lithium insertion compound cathode is heated ~~at greater or equal to 250°C.~~ to a temperature in the range of 250°C to 450°C.

Claim 3 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein an aqueous lithium borate solution is mixed with the lithium insertion compound cathode.

Claim 4 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein a small amount of lithium borate and the lithium insertion compound cathode

are dry mixed in a jar mill with media.

Claim 5 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein the amount of lithium borate is greater than about 0.01%, but less than 2% of the weight of the lithium insertion compound cathode.

Claim 6 (cancelled)

Claim 7 (currently amended) A non-aqueous rechargeable lithium battery as claimed in claim 6~~1~~ wherein the lithium transition metal oxide is a member of the solid solution series $\text{LiNi}_x\text{Co}_{1-x}\text{O}_2$ ($0 \leq x \leq 1$).

Claim 8 (currently amended) A non-aqueous rechargeable lithium battery as claimed in claim 6~~1~~ wherein the lithium transition metal oxide is LiCoO_2 .

Claim 9 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein the anode comprises a carbonaceous insertion compound.

Claim10 (original) A non-aqueous rechargeable lithium battery as claimed in claim 9 wherein the carbonaceous insertion compound is graphite.

Claim 11 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein the lithium salt is LiPF_6 .

Claim 12 (original) A non-aqueous rechargeable lithium battery as claimed in claim 1 wherein the non-aqueous solvent comprises a cyclic and/or linear organic carbonate.

Claim 13 (original) A non-aqueous rechargeable lithium battery as claimed in claim 12 wherein the nonaqueous solvent is a mixture of ethylene carbonate, propylene

carbonate, diethyl carbonate, ethyl methyl carbonate, and dimethyl carbonate.

Claims 14-26 (cancelled)

Claim 27 (new) A non-aqueous rechargeable lithium battery having reduced capacity fade rate during cycling, the battery including a lithium insertion compound cathode, a lithium or lithium compound anode, a separator, a non-aqueous electrolyte including a lithium salt dissolved in a non-aqueous solvent, and an amount of lithium borate dispersed on the surface of the active cathode material, wherein:

- (a) the amount of lithium borate is in the range of about 0.01% to about 0.15% of the weight of the lithium insertion compound cathode; and
- (b) the lithium borate is mixed with the lithium insertion compound cathode and heated to a temperature in the range between 250°C to less than 650°C.

Claim 28 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein the mixture of lithium borate and the lithium insertion compound cathode is heated to a temperature in the range of 250°C to 450°C.

Claim 29 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein an aqueous lithium borate solution is mixed with the lithium insertion compound cathode.

Claim 30 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein a small amount of lithium borate and the lithium insertion compound cathode are dry mixed in a jar mill with media.

Claim 31 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27

wherein the lithium insertion compound cathode is a lithium transition metal oxide cathode with LiCoO_2 type structure.

Claim 32 (new) A non-aqueous rechargeable lithium battery as claimed in claim 31 wherein the lithium transition metal oxide is a member of the solid solution series $\text{LiNi}_x\text{Co}_{1-x}\text{O}_2$ ($0 \leq x \leq 1$).

Claim 33 (new) A non-aqueous rechargeable lithium battery as claimed in claim 31 wherein the lithium transition metal oxide is LiCoO_2 .

Claim 34 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein the anode comprises a carbonaceous insertion compound.

Claim 35 (new) A non-aqueous rechargeable lithium battery as claimed in claim 34 wherein the carbonaceous insertion compound is graphite.

Claim 36 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein the lithium salt is LiPF_6 .

Claim 37 (new) A non-aqueous rechargeable lithium battery as claimed in claim 27 wherein the non-aqueous solvent comprises a cyclic and/or linear organic carbonate.

Claim 38 (new) A non-aqueous rechargeable lithium battery as claimed in claim 37 wherein the nonaqueous solvent is a mixture of ethylene carbonate, propylene carbonate, diethyl carbonate, ethyl methyl carbonate, and dimethyl carbonate.